

INFORMATION REPORT

CD NO. *775*

COUNTRY Germany (Russian Zone)

SUBJECT Application of Molybdenum Paste on
Cathodes

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"Auftragen von Molybdaenpaste
auf die Kathodenspirale" (Application of Molybdenum Paste on Cathode Spirals),
[redacted] Rectifier Bureau, Berlin-Oberschoeneweide, Wilhelminenhofstr.

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2. The cathode structure for the fixing of the focal spot consists of an iron tube, which is half submerged in the cathode mercury and is water-cooled on the inside. On the outer surface the tube is to be molybdenized. Iron would be pulverized by the cathode spot, while a molybdenum-coated surface would not be affected or only slightly reduced. The arc of light on this surface forms the molybdenum coating at first; a spongy surface develops which absorbs mercury. Upon this mercury the cathode spot burns, and when the mercury has evaporated the cathode spot moves on.
3. Another solution of the problem of molybdenization is a process whereby molybdenum wire is wound around the cathode structure and the spaces are filled with molybdenum powder; the molybdenum is then fused into it. However, the molybdenum can be applied and fused in even without the use of the wire, which may be the next step in the solution of the problem. The basic problem in either case is the application of the molybdenum layer.
4. In order to apply the molybdenum the technique of the solder-preventing agent (sic) is used. By dissolving 25 grams of polystyrol in 750 grams of toluol a polystyrol lacquer is produced. To 400 grams of this solution 200 grams of molybdenum powder are added and the iron spiral, with or without wire wound around it, is sprayed with or dipped into this solution. When heated in a vacuum the polystyrol is depolymerized into styrol, and the styrol which flows easily evaporates. Furthermore, the styrol is neutral and does not affect the material of the oven, the pump or the pump lines. Only the molybdenum powder remains which now can be fused into the iron. In a vacuum oven the spiral with the molybdenum layer is heated to a high temperature with the spiral itself serving as a body of resistance. Since the fusing of the molybdenum requires a temperature of at least 1250°C, the temperature at the beginning of the heating process is more than adequate to decompose the polystyrol since the decomposition of the polystyrol sets in at several hundred degrees. Therefore no special heating of the polystyrol is necessary. The results of the experiments on the fusing of molybdenum into iron have not yet been concluded.

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